

## TARP-γ3

Cat.No. 254 303; Polyclonal rabbit antibody, 50 µg specific antibody (lyophilized)

### Data Sheet

Reconstitution/ Storage	50 µg specific antibody, lyophilized. Affinity purified with the immunogen. Albumin and azide were added for stabilization. For <b>reconstitution</b> add 50 µl H <sub>2</sub> O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C to -80°C until use. Antibodies should be stored at +4°C when still lyophilized. Do not freeze! For detailed information, see back of the data sheet.
Applications	<b>WB:</b> 1 : 1000 up to 1 : 5000 (AP staining) <b>IP:</b> not tested yet <b>ICC:</b> 1 : 500 up to 1 : 1000 <b>IHC:</b> not tested yet <b>IHC_P:</b> not tested yet
Immunogen	Synthetic peptide corresponding to residues near the carboxy terminus of mouse TARP-γ3 (UniProt Id: Q9JJV5)
Reactivity	Reacts with: rat (Q8VHX0), mouse (Q9JJV5). Other species not tested yet.

**TO BE USED IN VITRO / FOR RESEARCH ONLY**  
**NOT TOXIC, NOT HAZARDOUS, NOT INFECTIOUS, NOT CONTAGIOUS**

## Background

Ligand gated cation channels of the AMPA subtype are composed of different GluA subunits and interact with a family of proteins termed transmembrane AMPA-receptor regulatory proteins (TARPs) also known as voltage gated calcium channel gamma subunits or CNAGs (1). These proteins regulate the surface expression and biophysical properties like the gating time of AMPA glutamate receptors (1). Six transmembrane AMPA receptor regulatory protein (TARP) isoforms, classified as Type I (γ-2, -3, -4, and -8) and Type II (γ-5 and -7), are discretely expressed in specific neuronal and glial populations and differentially regulate synaptic transmission throughout the brain (2). One key feature of TARP-gamma2 and TARP-gamma8 is the differential regulation of synaptic strength in the hippocampus that is determined by the number and density of AMPA glutamate receptors (3). Especially, TARP-gamma8 shows high expression levels in the hippocampus and is only sparsely expressed in other brain areas (4). The TARP-gamma3 gene locus shows a linkage to childhood absence epilepsy (CAE) (5).

## Selected General References

- Functional comparison of the effects of TARPs and cornichons on AMPA receptor trafficking and gating. Shi Y, Suh YH, Milstein AD, Isozaki K, Schmid SM, Roche KW, Nicoll RA. *Proceedings of the National Academy of Sciences of the United States of America* (2010) 10737: 16315-9. .
- TARP γ-2 and γ-8 Differentially Control AMPAR Density Across Schaffer Collateral/Commissural Synapses in the Hippocampal CA1 Area. Yamasaki M, Fukaya M, Yamazaki M, Azechi H, Natsume R, Abe M, Sakimura K, Watanabe M. *The Journal of neuroscience : the official journal of the Society for Neuroscience* (2016) 3615: 4296-312. .
- Hippocampal AMPA receptor gating controlled by both TARP and cornichon proteins. Kato AS, Gill MB, Ho MT, Yu H, Tu Y, Siuda ER, Wang H, Qian YW, Nisenbaum ES, Tomita S, Bredt DS, et al. *Neuron* (2010) 686: 1082-96. .
- Linkage and association analysis of CACNG3 in childhood absence epilepsy. Everett KV, Chioza B, Aicardi J, Aschauer H, Brouwer O, Callenbach P, Covanis A, Dulac O, Eeg-Olofsson O, Feucht M, Friis M, et al. *European journal of human genetics : EJHG* (2007) 154: 463-72. .
- Abundant distribution of TARP gamma-8 in synaptic and extrasynaptic surface of hippocampal neurons and its major role in AMPA receptor expression on spines and dendrites. Fukaya M, Tsujita M, Yamazaki M, Kushiya E, Abe M, Akashi K, Natsume R, Kano M, Kamiya H, Watanabe M, Sakimura K, et al. *The European journal of neuroscience* (2006) 248: 2177-90. .

Access the online factsheet including applicable protocols at <https://sysy.com/product/254303> or scan the QR-code.



# FAQ - How should I store my antibody?

## Shipping Conditions

- All our antibodies and control proteins / peptides are shipped lyophilized (vacuum freeze-dried) and are stable in this form without loss of quality at ambient temperatures for several weeks.

## Storage of Sealed Vials after Delivery

- **Unlabeled** and **biotin-labeled antibodies** and **control proteins** should be stored at 4°C before reconstitution. **They must not be stored in the freezer when still lyophilized!** Temperatures below zero may cause loss of performance.
- **Fluorescence-labeled antibodies** should be reconstituted immediately upon receipt. Long term storage (several months) may lead to aggregation.
- **Control peptides** should be kept at -20°C before reconstitution.

## Long Term Storage after Reconstitution (General Considerations)

- The storage freezer must not be of the frost-free variety ("no-frost freezer"). This cycle between freezing and thawing (to reduce frost-build-up), which is exactly what should be avoided. For the same reason, antibody vials should be placed in an area of the freezer that has minimal temperature fluctuations, for instance towards the back rather than on a door shelf.
- Aliquot the antibody and store frozen (-20°C to -80°C). Avoid very small aliquots (below 20 µl) and use the smallest storage vial or tube possible. The smaller the aliquot, the more the stock concentration is affected by evaporation and adsorption of the antibody to the surface of the storage vial or tube. Adsorption of the antibody to the surface leads to a substantial loss of activity.
- The addition of glycerol to a final concentration of 50% lowers the freezing point of your stock and keeps your antibody at -20°C in liquid state. This efficiently avoids freeze and thaw cycles.

## Product Specific Hints for Storage

### Control proteins / peptides

- Store at -20°C to -80°C.

### Monoclonal Antibodies

- **Ascites** and **hybridoma supernatant** should be stored at -20°C up to -80°C. **Prolonged storage at 4°C is not recommended!** Unlike serum, ascites may contain proteases that will degrade the antibodies.
- **Purified IgG** should be stored at -20°C up to -80°C. Adding a carrier protein like BSA will increase long term stability. Many of our antibodies already contain carrier proteins. Please refer to the data-sheet for detailed information.

### Polyclonal Antibodies

- **Crude antisera:** With anti-microbials added, they may be stored at 4°C. However, frozen storage (-20°C up to -80°C) is preferable.
- **Affinity purified antibodies:** Less robust than antisera. Storage at -20°C up to -80°C is recommended. Adding a carrier protein like BSA will increase long term stability. Most of our antibodies already contain carrier proteins. Please refer to the data-sheet for detailed information.

### Fluorescence-labeled Antibodies

- Store as a liquid with 1 : 1 (v/v) glycerol at -20°C. Protect these antibodies from light exposure.

# Avoid repeated freeze-thaw cycles for all antibodies!

## FAQ - How should I reconstitute my antibody?

### Reconstitution

- All our purified antibodies are lyophilized from PBS. To reconstitute the antibody in PBS, add the amount of deionized water given in the respective datasheet. If higher volumes are preferred, add water as mentioned above and then the desired amount of PBS and a stabilizing carrier protein (e.g. BSA) to a final concentration of 2%. Some of our antibodies already contain albumin. Take this into account when adding more carrier protein. For complete reconstitution, carefully remove the lid. After adding water, briefly vortex the solution. You can spin down the liquid by placing the vial into a 50 ml centrifugation tube filled with paper.
- If desired, add small amounts of azide or thimerosal to prevent microbial growth. This is especially recommended if you want to keep an aliquot a 4°C.
- After reconstitution of fluorescence-labeled antibodies, add 1 : 1 (v/v) glycerol to a final concentration of 50%. This lowers the freezing point of your stock and keeps your antibody in liquid state at -20°C.
- Glycerol may also be added to unlabeled primary antibodies. It is a suitable way to avoid freeze-thaw cycles.
- Please refer to our **tips and hints for subsequent storage** of reconstituted antibodies and control peptides and proteins.